# AUDIT OF THE FEDERAL COMMUNICATIONS COMMISSION YEAR 2000 PROGRAM

TASK ORDER #10

FINAL REPORT

August 16, 1999

TWM Associates, Inc.
Suite 310
3975 University Drive
Fairfax, VA 22030

## EXECUTIVE SUMMARY

Over the past several years, the term "Year 2000 Problem" has become increasingly familiar. This problem refers to the manner in which automated information systems have represented the year in computer records containing date information. For the past several decades, primarily in order to conserve expensive electronic data storage space and reduce operating costs, computer programmers used two-digit date fields instead of four-digit date fields to represent the year. Thus 1900 would be represented as 00 and 1999 would be represented as 99. In using this format, however, the year 2000 is indistinguishable from 1900 because both are represented only as 00. As a result, systems that use two-digit instead of four-digit date fields and perform date- or time-sensitive calculations may generate incorrect results beyond 1999, reading 00 as 1900 instead of 2000. Unless corrected, the impact of the "Year 2000 Problem" could be widespread and costly. In a report to Congress on the Year 2000 computing crisis, the General Accounting Office (GAO) recognized that "the United States – with close to half of all computer resources and 60 percent of Internet assets – is the world's most advanced and most dependent user of information technology.[1]". Recognizing that fact, the GAO concluded, "should these systems – which perform functions and services critical to our nation – suffer disruption, it could create widespread crisis." For that reason, the GAO designated the Year 2000 computing problem as a high-risk area.

On January 25, 1999, the Office of Inspector General (OIG) established Task Order No. 10 under its contract with TWM Associates, Inc. (hereafter referred to as TWM) to assist the OIG in conducting an audit of the Commission's Year 2000 (Y2K) program. The objective of this audit was to assess the readiness of Commission mission critical information systems[2] and provide constructive recommendations as warranted. In addition, we conducted interviews of Commission and contractor management and staff and examined Commission documents. The scope of this review was limited to the thirty (30) information systems that the FCC has identified as mission critical.

The FCC has established a program for addressing the Year 2000 problem for those information systems that have been defined as mission critical. However, due to factors identified in this report, the Commission lacks reasonable assurance of the uninterrupted operation of all mission critical information systems after December 31, 1999.

During this review, the team identified several areas of concern.

- The Commission has established an Independent Verification and Validation (IV&V) process to independently assess the effectiveness of renovation and validation efforts. However, the process has not been implemented in a timely fashion and did not meet either GAO or Office of Management and Budget (OMB) schedules. GAO defines

---

1 Year 2000 Computing Crisis: Potential for Widespread Disruption Calls for Strong Leadership and Partnerships (GAO/AIMD-98-85, April 30, 1998), page.1.

2 Mission Critical Information Systems are defined in Year 2000 Computing Crisis: An Assessment Guide (GAO/AIMD-10-1-14, September, 1997), page 32. as "Systems supporting a core business activity or process."

validation as the testing, verification and validation of converted or replaced platforms, applications, databases and utilities to ensure Y2K functionality. Under the IV&V an independent party who has no ownership or bias to the system(s) being validated conducts this process. In fact, as of June 1, 1999, the Commission has established only one of the two anticipated IV&V contracts and has scheduled only eight (8) of the twenty-nine (29) mission critical systems for IV&V testing.

- The Commission has not adequately addressed Business Continuity and Contingency Planning (BCCP) should mission critical systems fail due to Y2K or other eventualities. As of the completion of fieldwork, twenty-nine (29) of the Commission's thirty (30) mission-critical systems did not have written and tested contingency plans.

- The Commission has not tested replacement mission critical information systems or renovated mission critical information systems for specific conditions related to the Year 2000. Further, the Commission has accepted, and continues to accept, new and renovated information system without ensuring that testing for specific conditions related to the Year 2000 has been performed.

A mission critical system is defined as a system that supports a core business activity or process. The loss of any of the Commission's self-identified mission critical information systems could have an adverse effect on the Commission's ability to conduct business. For example,

- Licensing records for such critical national infrastructure services as police, emergency medical, fire, and coast and ground radio may be inaccessible because completion of their Y2K activities is not scheduled until after January 1, 2000.[3]

- Key financial applications, such as the Collections system, may be unavailable.

- The COPS system "which protects aircraft and other safety-of life services from potential interference by cable systems sharing the same frequencies[4] " may be inaccessible.

- The Equipment Authorization System "directly impacts the ability of an applicant to market equipment submitted for equipment authorization.[5]" The Office of Engineering and Technology (OET) states that "some estimates have placed the value of getting a product to market at up to $1,000,000 a day.[6]"

There are several areas where improvements can be made in the Commission's Year 2000 program. The Commission must quickly establish a dedicated Year 2000 test environment and conduct rigorous testing of mission critical systems. Systems being replaced must include

[3] Project review, Universal Licensing System, Second Quarter, FY 1999, May 13, 1999, p. 8.
[4] Status of the Federal Communications Commission's Year 2000 Efforts: Quarterly Progress Report, May 14, 1999, p.8.
[5] Project review, Office of Engineering and Technology Authorization & Licensing Systems (OET), Second Quarter, FY 1999, p. 1
[6] Ibid.

demanding Y2K tests before acceptance from the contractor. The Commission should immediately determine those applications that are unlikely to be Y2K compliant, and develop a strategy to ensure the critical operations will continue to be supported in event of system failure. Business continuity and contingency plans must be developed and tested to insure a smooth transition if Year 2000 disruptions occur.

On June 28, 1999, the OIG issued a draft report summarizing the result of this review. On July 28, 1999, the OMD responded to the draft report. In the response, OMD indicated concurrence with the three recommendations in the report. The Managing Director also reported that his office has taken significant strides towards addressing the internal FCC Year 2000 problems identified by the Office of Inspector General (OIG). The testing tools necessary to conduct the aforementioned IV&V tests have been purchased and contracts have been awarded to have all identified mission critical systems tested. In fact, this testing has already begun. We have incorporated each of the responses to the three recommendations into the body of this report. In addition, we have attached a complete copy of the response as Appendix F to the report.

The OIG will continue to monitor and support efforts being undertaken by the Information Technology Center (ITC) to address the potential Year 2000 problem.

## ACKNOWLEDGMENT

The Review team acknowledges the contributions of all that were involved with this report. Their efforts were highly professional and contributed to the successful completion of this effort.

| Name | Bureau | Role In the Commission's Year 2000 Program |
|---|---|---|
| Ron Stone | FCC/OMD | CIO |
| Bob Snow | FCC/OMD | Year 2000 Program Manager |
| David Jarrell | FCC/OMD | Computer Security Officer<br>Disaster Recovery/Business Continuity |
| Kimberly Hancher | FCC/OMD | CSR - Cops/Cars, ULS/Planned ULS, Auctions |
| Mary Jane Smith | FCC/OMD | CSR - IBFS, COSER, EAS (Lab), ELS, Collections |
| Rick Kanner | FCC/OMD | CSR - CDBS(AM,FM,TV, B-EEO, C-EEO), MDS, ECFS |
| Dave Woodson | FCC/OMD | CSR - Informal Complaints, Tariffs, Armis, IVR/NCC |
| Sharon Lee | FCC/CCB | Informal Complaints |
| Todd Mitchell | FCC/CCB | Tariffs |
| David Ahn | FCC/CCB | Armis |
| James Ham | FCC/CIB | IVR - Integrated Voice Response and Fax Server at NCC (Call Center Infrastructure) |
| Mike Lance | FCC/CSB | Cops/Cars - Cable antenna licensing & cable operator registration systems |
| Jacki Ponti | FCC/IB | IBFS - International Bureau Filing System |
| John Mount | FCC/IB | COSER - System used to coordinate CoChannel Serial licensing between US & Canada |
| Ron Novak | FCC/MMB | CDBS(AM, FM, TV, B-EEO, C-EEO) &<br>MDS - Multipoint/Multichannel Distribution System<br>EEO database |
| George Tannahill | FCC/OET | EAS (Lab) - Equipment Authorization System, ELS - Experimental Licensing System |
| Lynwood Jenkins | FCC/OMD | Collections |
| Spencer Hyndman | FCC/OMD | FCC Infrastructure |
| Sheryl Segal | FCC/OPA | ECFS (Rips) - Electronic Comments Filing System |
| Ira Keltz | FCC/WTB | ULS - Universal Licensing System (Aviation, Cell, Paging, Personal Communications Services) |
| John Chudovan | FCC/WTB | Planned for ULS (Marine, Restricted & Commercial, Amateur, Coast and Ground, Land Mobile, Microwave,) |
| Judy Dunlop | FCC/WTB | Planned for ULS (Marine, Restricted & Commercial, Amateur, Coast and Ground, Land Mobile, Microwave) |
| John Giuli | FCC/WTB | Auctions |

## TABLE OF CONTENTS

**AUDITING THE**
**FEDERAL COMMUNICATION COMMISSION**
**YEAR PROGRAM**
**(Task Order No. 10)**

## INTRODUCTION AND BACKGROUND

The Y2K problem is highly complex and technical in nature. Date codes are imbedded in millions of lines of code that serve as the underpinning of information systems utilized throughout the world. The process for identifying effected dates in software and subsequently replacing or renovating the effected systems and performing subsequent validation testing is arduous and complex. In recognition that the Y2K problem could be significant within the Federal government, the President in his Executive Order dated February 4, 1998, entitled Year 2000 Conversion stated that agencies shall "assure that no critical Federal program experiences disruption because of the Y2K problem." Furthermore, the President directed that the head of each agency shall, "assure that efforts to address the Y2K problem receive the highest priority attention in the agency…."

The General Accounting Office (GAO) and the Office of Management and Budget (OMB) assumed primary roles in guiding agencies towards ensuring uninterrupted service effective January 1, 2000. In September 1997, the GAO issued the Year 2000 Computing Crisis: An Assessment Guide. Per GAO, "This guide provides a framework and a checklist for assessing the readiness of federal agencies to achieve Year 2000 compliance. It provides information on the scope of the challenge and offers a structured approach for reviewing the adequacy of agency planning and management of the Year 2000 program." The guide is divided into five phases and establishes a timeline which included benchmark target dates for each of the identified phases to be addressed by Federal agencies including the FCC (please refer to page 11 of this report). "Initial Awareness" of the Y2K problem was to have commenced by January 1996. The final phase, known as "Validation and Implementation" was to have been initiated by July 1998. All systems identified by agencies, as "mission critical" are to be Y2K certified by the completion of this five phased approach. These target dates were established to afford agency's guidance and direction in working the Y2K problem.

On January 20, 1998, OMB established target dates (also incorporated in the chart on page 11) for completing information system renovation and validation and implementation. Per OMB Memorandum No. 98-02, all repairs to agency systems, both mission critical and non-mission critical, were to have been completed by March 1999. Furthermore, OMB directed federal agencies including the FCC to provide a quarterly progress reports (due the 15th of February, May, August, and November through 1999) to include the status of the total number of mission-critical systems.

In August 1998 the GAO issued a guide entitled Year 2000 Computing Crisis: Business Continuity and Contingency Planning. Per the GAO, "the guide provides a conceptual framework for helping large agencies to manage risk of potential Year 2000-induced disruptions to their operations." The focus of this guideline is to emphasize to agencies the need to reduce the risk and potential impact of Y2K induced information system failures on their core business processes by implementing aggressive continuity planning processes. A structure of four business continuity

planning phases: initiation; business impact analysis; contingency planning; and testing is incorporated in this approach.

Within the FCC, the responsibility for managing the Y2K resides with the Chief Information Officer (CIO).

## B. AUDIT OBJECTIVE

The objective of this audit was to evaluate and report to management on the Commission's efforts to address the Y2K problem.

## C. AUDIT SCOPE AND METHODOLOGY

### Scope

The audit was conducted in accordance with Generally Accepted Government Auditing Standards, and included such analysis, interviews and testing as required to support the audit findings.

Audit fieldwork was performed at Commission sites within the Washington, DC, metropolitan area and in Gettysburg, PA. from February through May 1999.

Because of the importance of Year 2000 compliance to the Commission's core operations, the OIG will continue to independently assess the Y2K program and issue special reports. The OIG will focus on Y2K issues involving external reporting, the Independent Validation and Verification (IV&V) process, Business Continuity and Contingency Planning (BCCP), and other topics, as needed.

### Methodology

The audit methodology included a review of applicable Federal regulations and documents to develop requirements. These regulations included:

- OMB Memorandum No. 98-02, "Progress Reports on Fixing Year 2000 Difficulties", dated January 20, 1998.

- GAO "Year 2000 Computing Crisis: Business Continuity and Contingency Planning", dated August 1998.

- GAO "Year 2000 Computing Crisis: An Assessment Guide", dated September 1997.

The audit included collecting evidence to determine if the mission critical systems were assessed, renovated, validated and implemented completely within the time lines set forth by GAO guidelines.

To accomplish our objective, we performed the following:

- Y2K Document Review. The team reviewed applicable Year 2000 GAO guides and OMB memoranda and bulletins.

- Y2K Management Review. The team interviewed Year 2000 program officials to assess the Commission's involvement in the Year 2000 Government wide initiative and to assess the documentation compliance with GAO guidelines.

- System Management Interviews. The team interviewed management officials of the Commission's mission critical systems to assess the progress towards meeting Year 2000 goals and adherence to the GAO guidelines.

- System Document Review. The team reviewed applicable ITC, bureau, and office system documents.

- Quarterly Progress Reports Review. The team reviewed FCC Quarterly Progress Reports submitted to OMB for compliance, consistency, and accuracy.

**Mission Critical Systems**

As part of our review of the Commission Y2K program, we requested that the CIO provide a listing of mission-critical information systems. In response to this request, the CIO provided the following list.

| Bureau/Office | Mission Critical Information System |
|---|---|
| Cable Services Bureau | Cable Antenna Licensing & Cable Operator Registration Systems (COPS/CARS) |
| Compliance and Information Bureau | Integrated Voice Response System (IVR) |
| International Bureau | International Bureau Filing System (IBFS) |
| International Bureau | Co-Channel Serial Licensing System (USA/Canada) (Coser) |
| Mass Media Bureau | AM Licensing |
| Mass Media Bureau | FM Licensing |
| Mass Media Bureau | TV Licensing |
| Mass Media Bureau | Multipoint Distribution Systems (MDS)* |
| Mass Media Bureau | EEO* |
| Mass Media Bureau | Children's TV* |
| Office of Engineering and Technology | Equipment Authorization System |
| Office of Engineering and Technology | Experimental Licensing System |
| Common Carrier Bureau | Informal Complaints |
| Common Carrier Bureau | Tariffs |
| Common Carrier Bureau | Automated Reporting Management Information System (ARMIS) |

| | |
|---|---|
| Office of Managing Director | Collections |
| Office of Public Affairs | Electronic Comments Filing System (ECFS – RIPS) |
| Wireless Telecommunications Bureau | Aviation |
| Wireless Telecommunications Bureau | Marine |
| Wireless Telecommunications Bureau | Restricted & Commercial* |
| Wireless Telecommunications Bureau | Amateur |
| Wireless Telecommunications Bureau | Auctions |
| Wireless Telecommunications Bureau | Cellular |
| Wireless Telecommunications Bureau | Paging |
| Wireless Telecommunications Bureau | Personal Communications System |
| Wireless Telecommunications Bureau | Coast & Ground |
| Wireless Telecommunications Bureau | Land Mobile |
| Wireless Telecommunications Bureau | Microwave |
| Wireless Telecommunications Bureau | Interactive Video Data Service (IVDS)* |
| Wireless Telecommunications Bureau | Universal Licensing System (ULS) |

One system listed above, the Equal Employment Opportunity (EEO) was later declared not to be mission critical. Accordingly, the total reported mission critical systems was reduced from thirty to twenty nine systems.

The team relied on the FCC's designation of a system as mission critical to select systems for review. The scope of this review did not include an assessment of the process the Commission used for designating systems as mission critical. Nor did the scope include an analysis of the Year 2000 activities for those systems that were not designated mission critical. In addition, lack of time and staff precluded a detailed analysis of the Year 2000 activities for five mission critical systems (the systems are noted in the proceeding table with an asterisk). We found that the move to Portals had created problems for finding people and identifying time to meet with the team and coordinate with the Customer Service Representative (CSR). Also, some of the applications were being incorporated into new systems. It became clear that the same conditions were consistent across this set of mission critical systems because that the renovation of these systems stemmed from the same Statement of Work (SOW). This is especially true of the systems being incorporated into ULS.

For additional information on the FCC's mission critical information systems, please refer to Appendixes C and D.

## D. FINDINGS:

Over the past two years, the Commission has made progress addressing the Year 2000 problem. However, the internal Y2K program has not adequately addressed critical components of the readiness process in a timely manner. For example, the Commission has not: (1) completed critical IV&V testing; (2) developed and tested contingency plans for mission-critical systems; (3) required that contractors conduct specific testing for Year 2000 conditions in replacement or renovated systems; and (4) completed renovation, validation, and implementation of all mission-critical systems. As a result of these conditions, the Commission is not able to accurately assess readiness of mission-critical information systems or provide assurance that critical Commission operations, including those supporting public safety, will not be disrupted. Commission program officials attributed these conditions to a number of factors including the Commission's recent move to a new Headquarters facility, delays in obtaining necessary funding, vendor misrepresentation of software compliance, and the introduction of an upgraded Information Technology (IT) infrastructure. Non-withstanding these conditions, the FCC on May 14, 1999, reported to OMB in a required quarterly status report that 26 of 29 self-identified mission critical systems were classified as Year 2000 compliant.

In May 1997, the Commission established a Year 2000 Task Force to address internal Year 2000 problems and the specific areas of concern to the Commission's Bureaus and Offices. The primary objectives of the Task Force were to: (1) assess the compliance of information systems and identify systems that were not compliant; (2) develop and implement plans to repair or replace non-compliant systems; and (3) identify and replace non-compliant Information Technology (IT) Infrastructure hardware, telecommunications equipment and building facility systems. In August 1998, the Commission submitted their first report to OMB on the status of these efforts. In this report, the Commission reported thirty (30) mission-critical systems of which two (2) were compliant systems recently put into production. Of the remaining twenty-eight mission-critical systems, eleven (11) were reported as compliant, fourteen (14) were to be replaced, and (3) were to be repaired. In their latest report to OMB, dated May 14, 1999, the Commission reported that of twenty-nine (29) mission-critical systems,[7] twenty-six (26) systems being reported as compliant, two (2) systems were in the renovation phase, and one (1) system was being tested. While this reflects a dramatic shift in the reporting classification of the Commission's mission critical systems, it is our opinion that this representation is not reflective of the Y2K operational readiness of the Commission. Per GAO, Year 2000 compliant means "that the information technology accurately processes date/time data from, into, and between the twentieth and twenty-first centuries, and the years 1999 and 2000 and leap year calculations, to the extent that other information technology, used in combination with the information technology being acquired, properly exchanges date/time data with it.[8]"

---

[7] The Commission reported that the number of mission-critical systems was reduced by one (1) because a recent Court ruling regarding the collection of Equal Employment Opportunity (EEO) data by the Mass Media Bureau. As a result of that ruling, reprogramming of EEO software can not begin until revised requirements are developed.

[8] Year 2000 Computing Crisis: An Assessment Guide, (GAO/ AIMD-10-1-14, September, 1997), page 33.

The Commission has characterized in quarterly reports to OMB, mission critical systems as Y2K compliant, which at date of this report had not been independently validated and verified. Thus, while the Commission has completed certain key phases in the Y2K conversion cycle, the most intensive and time-consuming component of the process as defined by GAO has not been initiated. Lacking the required testing, verification and validation by an independent party, and subsequent implementation (integration and acceptance testing to ensure that all converted or replaced system components perform adequately in a heterogeneous operating environment), the Chairman lacks basis to assure the President that FCC mission critical systems will be operational on January 1, 2000.

In guidelines promulgated by the GAO, a framework and checklist for agencies to self-assess their readiness to achieve Year 2000 compliance was established. In their framework, the GAO defined a five phased approach supported by program and project management. Each phase, listed below, represents a major Year 2000 program activity or segment.

- Awareness. Define the Year 2000 problem and gain executive level support and sponsorship. Establish a Year 2000 program team and develop an overall strategy. Ensure that everyone in the organization is fully aware of the issue.

- Assessment. Assess the Year 2000 impact on the enterprise. Identify core business areas and processes. Inventory and analyze systems supporting the core business areas, and prioritize their conversion or replacement. Develop contingency plans to handle data exchange issues, lack of data, and bad data. Identify and secure the necessary resources

- Renovation. Convert, repair, replace, or eliminate selected platforms, applications, databases, and utilities. Modify interfaces.

- Validation. Test, verify, and validate converted or replaced platforms, applications, databases, and utilities. Test the performance, functionality, and integration of converted or replaced platforms, applications, databases, utilities, and interfaces in an operational environment.

- Implement. Install converted or replaced platforms, applications, databases, utilities, and interfaces. Execute contingency plans, if necessary.

The GAO schedule specified this timeline:

- January 1996 through December 1996 for Awareness,
- November 1996 through August 1997 for Assessment,
- May 1997 through August 1998 for Renovation, and
- July 1998 through December 1999 for Validation and Implementation

The FCC has not met the last two benchmark dates and is currently in the process of initial activity in the validation phase which, per GAO, should have commenced in the July, 1998 timeframe.

The OMB has also taken a focal role in overseeing the progress of agencies in addressing the difficulties related to the Year 2000. On January 20, 1998, OMB established a target date of September 1998, for completion of renovation and January 1999 for completion of validation. OMB Memorandum No. 98-02 further stated that March 1999 should be the end date for implementing repairs to all systems, both mission critical and non-mission critical.

Internal to the FCC, the CIO established April 1999 as the internal benchmark dates for initiating the Commission's validation process. The FCC's focused its Year 2000 validation efforts on establishing and implementing an Independent Verification and Validation (IV&V) test facility. The IV&V test facility is a computer system that is image of the Commission's IT computer hardware and software platform. Using this test facility, an independent party, with no ownership or bias to the system(s) being validated, will assess and test all FCC mission critical systems for Year 2000 for Y2K compliance. If the IV&V testing has disclosed any Year 2000 problems, then the FCC can implement repairs. IV&V is an industry best practice and is critical to ensure effective code renovation. The IV&V process acts as a Year 2000 quality control procedure independently assuring that the systems reviewed are Year 2000 compliant.

The FCC has not met this schedule. Appendix B contains a graphical representation including the GAO and OMB benchmark dates and where the Commission's Year 2000 Program converges with these external deadlines. This chart clearly illustrates that the FCC has and continues to be delinquent in all phases of theY2K process. If the Commission is able to complete all phases of their Y2K process for all mission critical systems by midnight, December 31, 1999, the delays in meeting benchmark dates will be a moot point. However, there is no assurance that this will be accomplished. With less then six months to go until January 1, 2000, the OIG has not been presented with documentation that would support institutional preparedness for the Y2K event. Furthermore, the OIG has not been presented with evidence that business continuity and contingency planning is adequate for the majority of mission critical systems to ensure that the Commission will be able to perform core mission critical functions should a Y2K disruption occur.

**Status of Internal Y2K Efforts**

Based upon detailed interviews with Y2K program officials, the OIG can report that the FCC is actively engaged in a fast track approach to address the Y2K problem. The Commission has now engaged a contractor to conduct IV&V and has accelerated its business continuity and contingency planning. However, the OIG has not been provided with adequate assurance to report to management that these efforts will be executed in a timely and effective manner necessary to minimize potential Y2K disruptions.

The IV&V activities are behind schedule. The project was to begin in April but as of June 9, 1999, only eight systems are scheduled for IV&V testing. The initial IV&V milestone, the Vulnerability Assessment Report, has been completed on only three systems. Further progress is stalled because the ITC does not have a critical software tool, Winrunner, to be used to conduct IV&V testing. Winrunner was not purchased because the money for it was not available until recently. The other 21 of the remaining 24 mission critical systems included within the scope of the audit have not been scheduled for IV&V processing. Presently, ITC is awarding a contract to a second vendor to perform the remaining IV&V testing.

The time remaining to perform IV&V testing is short. The average time allocated to perform IV&V testing, based on benchmarks for the eight scheduled systems, is seventy-three days, from start to finish. Projecting that it takes an average of seventy-three days to do an IV&V at the FCC, all IV&Vs must start by mid September to end by November 30, 1999. This would allow thirty-one days for repair and re-testing. Also, if IV&V testing identifies Y2K problems, the Commission does not have a documented procedure for repair of the problems and re-testing.

Another critical aspect of the problem is that several mission critical systems are not ready for IV&V testing as they are still being renovated. Renovation is the third step in the five-step process defined on page 6 of this report. Our April 1999 interviews found seven systems to be in the renovation phase, which means they are currently being repaired to be Y2K compliant or replaced by new, Y2K compliant, applications. These systems are also not ready for IV&V testing and include:

- Cable Operator Registration & Cable Antenna Licensing systems (COPS/CARS)
- National Call Center, Integrated Voice Response (NCC/ IVR)
- Universal Licensing System (ULS)
- Collections
- Co-Channel Serial Licensing System (COSER)
- Informal Complaints

COPS/CARS maintains a database of cable radio service and antenna relay licensing subsystems. The NCC/IVR system provides automatic phone assistance on regulatory matters to the public calling the FCC. ULS will manage all two million Wireless Telecommunication Bureau licenses. The Collections system accounts for all fees paid to the Commission for licensing and other services. COSER coordinates licensing between the United States and Canada. Informal Complaints captures and tracks informal complaints received by the Cable Services Bureau.

Should FCC mission critical systems not maintain functionality on January 1, 2000, the FCC will have to invoke its BCCP for affected systems. As of June 1, 1999, only one of the twenty-nine mission critical systems, Auctions, has a documented BCCP that can be used for a Year 2000 outage. Auctions is the WTB computer system that was developed to expedite simultaneous multiple round on-line bidding for spectrum licenses. Auctions is also the only mission critical system that has successfully tested its BCCP. All other mission critical systems either had no BCCP or indicated they had an informal, anecdotal, untested backup BCCP.

The FCC Y2K Program Office is developing a high level Commission wide BCCP. We have reviewed a preliminary draft of this plan. With appropriate Bureau and Office input, it can be adequate as a master Commission wide blueprint. However, details on the specific activities needed to support specific mission critical systems were not available. Also, BCCPs should be tested to disclose problems before use.

As documented in the Executive Summary, the loss of any of the Commission's self-identified mission critical information systems could have an adverse effect on the Commission's ability to conduct business. Examples include:

- Licensing records for such critical national infrastructure services as police, emergency medical, fire, and coast and ground radio may be inaccessible because completion of their Y2K activities is not scheduled until after January 1, 2000.

- Key financial applications, such as the Collections system, may be unavailable.

- The COPS system "which protects aircraft and other safety-of life services from potential interference by cable systems sharing the same frequencies " may be inaccessible.

- The Equipment Authorization System which "directly impacts the ability of an applicant to market equipment submitted for equipment authorization" could be inaccessible. The Office of Engineering and Technology (OET) states that "some estimates have placed the value of getting a product to market at up to $1,000,000 a day."

**Recommendations:**

We recommend that:

1. The CIO prepare all mission critical systems for IV&V testing by:
- Reviewing the progress of those systems not ready for IV&V testing,
- Establishing a realistic time line for IV&V readiness, and
- Applying additional resources where needed, to ready the system for IV&V testing.

If this is not practical for a specific mission critical system, then the CIO, with appropriate Bureau and Office input, should develop an alternative for Year 2000 processing and include it in its BCCP.

Management Response:

The OMD concurs with the recommendations. A time line is enclosed (in Appendix F). Additional resources have been assigned. System BCCPs for all mission critical systems are being developed.

2. The CIO should increase focus on the IV&V process by:
- Awarding a contract for IV&V testing for the remaining mission critical systems. If this cannot be quickly completed, then extend the contract of the present IV&V contractor, if possible.
- Acquiring all needed IV&V testing tools,
- Instituting a realistic IV&V project plan for all mission critical systems in a timely manner.

Management Response:

The OMD concurs with the recommendations. A second contract has been awarded and all mission critical systems are under contract. All IV&V testing tools have been purchased. Any delay in obtaining/providing tools was not for lack of funding but from the need to wait until all

trainees were on board. A project plan reflecting both contracts and their staffing has been prepared.

3. The CIO, with appropriate Bureau and Office input, develop and test BCCPs both for all mission critical applications and for a Commission wide outage. We recommend that the FCC Y2K Program office review the progress made and apply resources where needed, to develop and test effective BCCPs for a Year 2000 outage.

Management Response:

The OMD concurs with the recommendations. The OMD is developing a BCCP that covers full and partial outages for Commission infrastructure and support services such as electricity. The Bureaus/Offices are preparing BCCPs covering all mission critical systems and core business processes. The OMD and Bureaus/Offices will work together to develop and test these plans.

**Subsequent Actions**

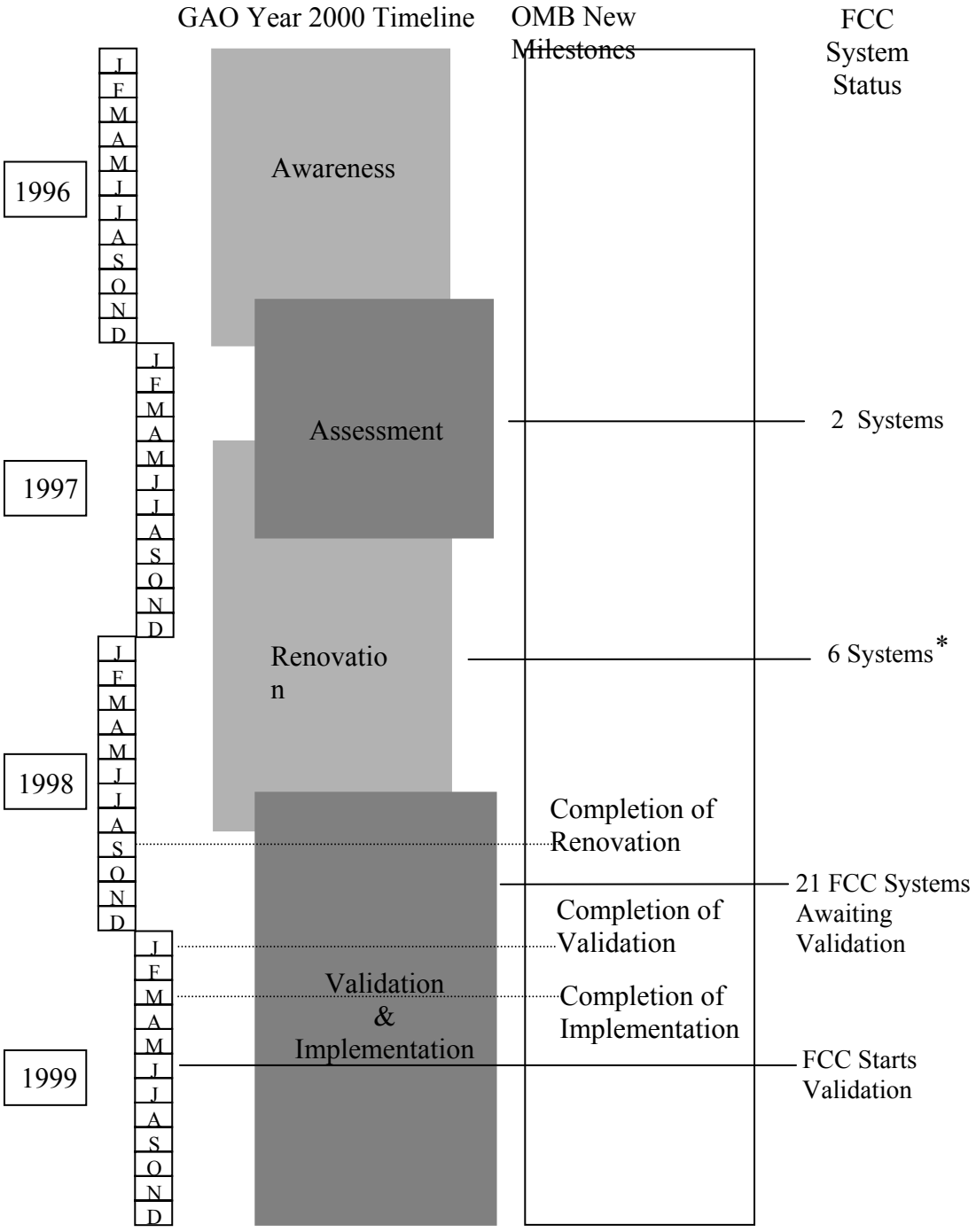
Subsequent to the issuance of the draft report, the Office of the Managing Director has taken significant steps towards addressing our recommendations. All necessary IV&V contracts have been awarded and the requisite IV&V testing tools have been procured. The Information Technology Center has begun IV&V testing and developed a schedule to complete the IV&V process by October 15, 1999. OMD published an agency level BCCP and is currently developing plans for its mission critical systems. Please see the OMD response at Appendix F for additional details.

The OIG will continue to monitor and support efforts being undertaken by the Office of the Managing Director and the Information Technology Center to address potential Year 2000 problems.

## APPENDIX A – GLOSSARY

| | |
|---|---|
| Awareness | Define the Year 2000 problem and gain executive level support and sponsorship. Establish a Year 2000 program team and develop an overall strategy. Ensure that everyone in the organization is fully aware of the issue. |
| Assessment | Assess the Year 2000 impact on the enterprise. Identify core business areas and processes. Inventory and analyze systems supporting the core business areas and prioritize their conversion or replacement. Develop contingency plans to handle data exchange issues, lack of data, and bad data. Identify and secure the necessary resources. |
| BCCP | Business Continuity and Contingency Plan |
| Implementation | Implement, converted or replaced platforms, applications, databases, utilities, and interfaces. Implement data exchange contingency plans, if necessary |
| Independent Verification and Validation (IV&V) | The process to separately assess the effectiveness of renovation and validation efforts conducted by a party with no ownership in or bias to the system(s) being certified. |
| Legacy Systems | Older computer systems, frequently using obsolete computer hardware or software. Legacy systems often have Year 2000 problems. |
| Mission Critical Information Systems | Systems supporting a core business activity or process. |
| Renovation | Convert, repair, replace, or eliminate selected platforms, applications, databases, and utilities. Modify interfaces. |
| Validation | Test, verify, and validate converted or replaced platforms, applications, databases, and utilities. Test the performance, functionality, and integration of converted or replaced platforms, applications, databases, utilities, and interfaces in an operational environment. |

## Appendix B. Year 2000 Timeline




* Some Systems being combined into ULS have a Y2K completion date after January 1, 2000.

## Appendix C

## Mission Critical Systems

The Federal Communications Commission Year 2000 Program Office has designated twenty-nine Commission systems as being mission critical. This Appendix lists all the Commission mission critical systems, identified by number, that were contained in documentation provided by the Commission's Year 2000 program office.

A table that indicated current progress towards meeting Year 2000 goals is provided in summation of the progress.

## Cable Services Bureau Systems

### 1. Cops/Cars - Cable Operator Registration & Cable Antenna Licensing systems

Customer Service Representative (CSR) Kimberly Hancher (418-2023)
Point of Contact (POC) Mike Lance (418-7014)

**Cable Operations:** This database is used by the cable radio service licensing subsystems other than Cable Relay. These subsystems maintain cable station license information, print station authorizations, Public Notices of license grants, etc. and perform ad-hoc reporting of the administrative and community data, technical data, performance test results and cable system specific data captured on the database..

**Antenna Relay:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for Antenna Relay stations.

## Compliance and Information Bureau Systems

### 2. IVR - Integrated Voice Response and Fax Server at National Call Center (NCC)

CSR Dave Woodson (418-2666)
POCs: Charles Engle (418-1137)
Bruce Tripp (418-1138)
James Ham (717-338-2620)

**Integrated Voice Response:** This system automatically answers questions on specific license status, part 90 and Amateur Licensing from outside (public) callers to the CIB National Call Center. This system greatly reduces the number of telephone calls from the public that must be handled by FCC staff.

## International Bureau Systems

### 3. IBFS – International Bureau Filing System

CSR Mary Jane Smith (418-0593)
POC Jacki Ponti (418-1137)

**International Bureau Filing System**: IBFS is a consolidated licensing system that tracks application processing of applications in the International Bureau (IB). IBFS consolidates licensing systems that provide authorization of service for international fixed public radio, Section 214 filings, domestic and international earth stations, geostationary space stations, low-earth-orbit space stations, direct broadcast satellites, international broadcast stations, and recognized private operating agencies.

### 4. COSER - CoChannel Serial licensing between US & Canada

CSR Mary Jane Smith (418-0593)

POC John Mount (418-0578)

**CoChannel Serial Coordination:** This system supports CoChannel Serial co-ordination between Industry Canada (the Canadian counter-part to the FCC) and the Commission. There are two subsystems; one to coordinate southbound licensing; the other to coordinate northbound licensing. (The Southbound system is being redeveloped by Inter-national Bureau, and will be made Year 2000 compliant.)

## Mass Media Bureau Systems

### 5-7 CDBS – Common Data Base System

CSR Rick Kanner (418-1830)
COTR Ron Novak (418-2622)

**Common Data Base System** is the Mass Media Bureau's central data repository containing the following databases.

**5. AM Engineering database.** This system captures technical information relevant to AM broadcast stations.

**6. FM Engineering database.** This system captures technical information relevant to FM broadcast stations.

**7. TV Engineering database.** This system captures technical information relevant to television broadcast stations.

### 8. MDS - Multipoint/Multichannel Distribution System/Instructional Television Fixed System database

CSR Rick Kanner (418-1830)
COTR Ron Novak (418-2622)

**Multipoint/Multichannel Distribution System/Instructional Television Fixed System database:** This system contains technical and licensing information relevant to MMDS/ITFS station licenses.

### 9. EEO – Equal Employment Opportunity database

CSR Rick Kanner (418-1830)
COTR Ron Novak (418-2622)

**Cable EEO database:** This system captures technical information relevant to Equal Employment Opportunity programs of cable television stations.

The EEO system has been removed from the list of mission critical systems.

**Multipoint/Multichannel Distribution System EEO database:** This system captures technical information relevant to Equal Employment Opportunity programs of MMDS licensees.

10. **Children's Television database**

CSR Rick Kanner (418-1830)
COTR Tom Wilcheck (418-2654)

**Children's Television database:** This system captures and reports data submitted by licensees, relevant to television programming for children.

**Office of Engineering and Technology Systems**

**11. EAS (Lab) – Equipment Authorization System**

CSR Mary Jane Smith (418-0593)
POC George Tannahill (301-725-1585 x207)

**Equipment Authorization:** This system tracks equipment approval prior to its being introduced into the market, and captures administrative and technical data relevant to that equipment.

**12. ELS - Experimental Licensing System**

CSR Mary Jane Smith (418-0593)
POC George Tannahill (301-725-1585 x207)

**Experimental Licensing:** This system captures data submitted by licensees, relevant to experimentation conducted prior to proposing changes to FCC spectrum management rules, and permits limited capability to make preliminary market studies to determine new product viability. Failure of this system would make spectrum analysis more difficult, and inconvenience public entities that are conducting research into improved technologies.

**Office of Managing Director - Systems**

**13. Collections**

CSR Mary Jane Smith (418-0593)
COTR Lynwood Jenkins (418-1935)

**Collections:** This system accounts for all fees paid to the Commission for licensing and other services.

## OPA Systems

### 14 ECFS - Electronic Comments Filing System

CSR Rick Kanner (418-1830)
COTR Sheryl Segal (418-0265)

**ECFS:** Electronic Comments Filing System is a Web-based system that accepts electronic comments on all proceedings with docket numbers or rulemaking numbers. Comments received on paper are scanned into the system. ECFS also provides access to the data for online review and printing.

## Common Carrier Bureau Systems

### 15. Informal Complaints

CSR Dave Woodson (418-2666)
COTR Sharon Lee (418-2800)

**Informal Complaints:** This system tracks and assists in the resolution of informal (consumer) complaints.

### 16. Tariffs

CSR Dave Woodson (418-2666)
COTR Todd Mitchell (418-1555)

**Tariffs:** This system allows local exchange carriers to submit and access federal tariffs and associated documents electronically via the Internet.

### 17. ARMIS

CSR Dave Woodson (418-2666)
POC David Ahn (418-0853)

**ARMIS Paperless Environment:** The Automated Reporting Management Information System collects financial and operational data from the largest carriers. ARMIS consists of ten public reports.

## Wireless Telecommunications Bureau Systems

### 18. Av – Aviation (now in ULS)

**Aviation:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for aviation radio licenses.

**19. Mar – Marine (Planned for inclusion in ULS)**

CSR Kimberly Hancher (418-2023)
POC John Chudovan / Judy Dunlop

**Marine:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for Marine radio licenses.

**20. RC – Restricted & Commercial (Planned for inclusion in ULS)**

CSR Kimberly Hancher (418-2023)
POC John Chudovan / Judy Dunlop

**Restricted & Commercial:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for Restricted and Commercial radio licenses. The system is composed of two subsystems, the Restricted Radiotelephone Operator Permit and the Commercial Radio Operator Licenses.

**21. Amateur (Planned for inclusion in ULS)**

CSR Kimberly Hancher (418-2023)
POC John Chudovan / Judy Dunlop

**Amateur:** This licensing system maintains amateur license information, prints amateur authorizations, Public Notices of license grants, etc. for Amateur radio licenses.

**22. Auctions**

CSR Kimberly Hancher (418-2023)
COTR John Giuli (418-1221)

**Auctions:** This system manages online bidding on spectrum licenses and accounts for all auction activity.

**23. Cell - Cellular (now in ULS)**

**Cellular:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for cellular radio stations.

**24. Paging (now in ULS)**

**Paging:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for paging system licenses.

**25. PCS – Personal Communications Services (now in ULS)**

**Personal Communications Services:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for Personal Communications Service licenses.

**26. CG - Coast and Ground (Planned for inclusion in ULS)**

CSR Kimberly Hancher (418-2023)
POC John Chudovan / Judy Dunlop

**Coast and Ground:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for coast and ground radio licenses.

**27. LM – Land Mobile (Planned for inclusion in ULS) (Includes IVDS)**

CSR Kimberly Hancher (418-2023)
POC John Chudovan / Judy Dunlop

**Land Mobile:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for land mobile radio licenses.

**28. MW – Microwave (Planned for inclusion in ULS)**

CSR Kimberly Hancher (418-2023)
POC John Chudovan / Judy Dunlop

**Microwave:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for Microwave radio licenses.

**29. IVDS – Interactive Video Data Service**

**Interactive Video Data Service:** This licensing system maintains station license information, prints station authorizations, Public Notices of license grants, etc. for Interactive Video Data Service licenses with in the 218/219Mhz range.

**30. ULS - Universal Licensing System**

CSR Kimberly Hancher (418-2023)
System POC Ira Keltz (418-0616)

**Universal Licensing:** This system is currently being developed to incorporate older all WTB licensing systems and permit electronic filing and viewing of licenses.

## Appendix D

## Table of Year 2000 Status for Mission Critical Systems

| SYSTEM | Progress | Scheduled for IV&V |
|---|---|---|
| **Cable Services Bureau Systems** | | |
| 1. Cops/Cars | Renovation | |
| **Compliance and Information Bureau Systems** | | |
| 2. Integrated Voice Response | Renovation | |
| **International Bureau Systems** | | |
| 3. International Bureau Filing System | Renovation | Yes |
| 4. Co-Channel Serial licensing between US & Canada | Assessment/ Renovation | |
| **Mass Media Bureau Systems** | | |
| Consolidated Data Base System (CDBS) | Renovation | |
| 5. AM Engineering Database | See CDBS | |
| 6. FM Engineering Database | See CDBS | |
| 7. TV Engineering Database | See CDBS | |
| 8. Multipoint/Multichannel Distribution System | Renovation | |
| 9. Equal Employment Opportunity Database | No longer mission critical | |
| 10. Children's Television Database | Verification | |
| **Office of Engineering and Technology Systems** | | |
| 11. Equipment Authorization System | Verification | Yes |
| 12. Experimental Licensing System | Verification | Yes |
| **Office of Managing Director Systems** | | |
| 13. Collections | Renovation | Yes |
| **OPA Systems** | | |
| 14. Electronic Comments Filing System | Verification | |
| **Common Carrier Bureau Systems** | | |
| 15. Informal Complaints | Assessment/ Renovation | |
| 16. Tariffs | Verification | |
| 17. Armis | Verification | Yes |
| **Wireless Telecommunications Bureau Systems** | | |
| 18. Aviation | See ULS | |
| 19. Marine | Renovation | |
| 20. Restricted & Commercial | Renovation | |
| 21. Amateur | Renovation | |
| 22. Auctions | Verification | Yes |
| 23. Cellular | See ULS | |
| 24. Paging | See ULS | |
| 25. Personal Communications Services | See ULS | |
| 26. Coast and Ground | Renovation | |
| 27. Land Mobile | Renovation | |
| 28. Microwave | Renovation | |
| 29. Interactive Video Data Service | Renovation | |
| 30. ULS - Universal Licensing System | Renovation/ Verification | |

## Appendix F

## Management Response

**FEDERAL COMMUNICATIONS COMMISSION**
**M E M O R A N D U M**

**DATE:** July 28, 1999

**FROM:** Andrew S. Fishel
Managing Director

**TO:** H. Walker Feaster III
Inspector General

**SUBJECT:** Draft Report on the Review of the Federal Communications Commission Year 2000 Program

The Office of the Managing Director has completed a review of the Inspector General's Draft Audit of the Federal Communication Commission Year 2000 Program dated June 28, 1999 and agrees to implement the findings and recommendations provided. Set forth below, are the recommendations and management's responses.

A. Recommendations:

1. The CIO prepare all mission critical systems for IV&V testing by:
- Reviewing the progress of those systems not ready for IV&V testing
- Establishing a realistic time line for IV&V readiness, and
- Applying additional resources where needed, to ready the system for IV&V testing.
- Develop a specific system BCCP with Bureau/Office input for any system that can not be ready for IV&V on time.

Management Response: The OMD concurs with the recommendations. A time line is enclosed. Additional resources have been assigned. System BCCPs for all mission critical systems are being developed.

2. The CIO should increase focus on the IV&V process by:
- Awarding a contract for IV&V testing for all remaining mission critical systems
- Acquire all needed IV&V testing tools.
- Instituting a realistic IV&V project plan for all mission critical systems in a timely manner.

Management Response: The OMD concurs with the recommendations. A second contract has been awarded and all mission critical systems are under contract. All IV&V testing tools have been purchased. Any delay in obtaining/providing tools was not for lack of funding but from the need to wait until all trainees were on board. A project plan reflecting both contracts and their staffing has been prepared.

3. The CIO, with appropriate Bureau and Office input, develop and test BCCPs for all mission critical applications and for a Commission wide outage and that the FCC Y2K

Program office review the progress made and apply resources where needed, to develop and test effective BCCPs for a Year 2000 outage.

Management Response: The OMD concurs with the recommendations. The OMD is developing a BCCP that covers full and partial outages for Commission infrastructure and support services such as electricity. The Bureaus/Offices are preparing BCCPs covering all mission critical systems and core business processes. The OMD and Bureaus/Offices will work together to develop and test these plans.

B. Other Issues Identified:

1. The report states that the FCC has established an Independent Verification and Validation (IV&V) process but that the FCC has lagged behind the GAO guidelines. The IG points out that, as of June 1, 1999, the FCC had established only one of two targeted IV&V contracts and that only eight (8) of twenty-nine (29) mission critical systems were covered by contract.
Management Response: At the time of the report, the second contract was imminent and has now been awarded. Work is proceeding under both contracts and all appropriate mission critical systems are covered by the contracts. An IV&V schedule covering all appropriate mission critical systems is enclosed. The Contractor's schedule calls for the completion of testing for all systems by October 1, 1999. Funding for the IV&V effort was not available until December 1998. Initial FCC efforts to complete the contractual process for the first IV&V contract were unsuccessful as the FCC encountered difficulty in finding truly independent contractors that would provide the thorough testing required under acceptable conditions. The first contract effort resulted in no bidders responding. A second effort obtained one bidder. At the same time, a key piece of the FCC automation environment (PowerBuilder) required for true IV&V was not available from the vendor in certified form until June 1999. The report lists six systems as being not ready for IV&V. Four of those systems are now ready for IV&V with a fifth having completed simple programming and soon to be ready. The last system is scheduled to be completed in August and will be tested in September.

2. The report points out that the FCC, as of June 1, 1999, did not have BCCPs for twenty-nine (29) of thirty (30) mission critical systems.

Management Response: A draft of the agency level BCCP was provided to the IG at the time this report was presented to OMD in June 1999. Work on preparing local contingency plans covering all appropriate mission critical systems is well underway towards the August 15, 1999 target date. Additional targets have been established calling for completion of local contingency plan training by September 15, 1999 and completion of plan testing by October 15, 1999. The FCC has concentrated on remedial actions first and the above schedule will provide the FCC tested contingency plans reasonably in advance of January 1, 2000.

3. The report states that replaced/renovated systems had not been tested for specific conditions related to the Year 2000 and that the Commission accepted and continues to accept new and renovated systems without ensuring that specific Year 2000 testing has been performed.

Management Response: In response, it should be pointed out that the basic FCC contract under which renovation/replacement programming takes place requires Year 2000 compliant design and programming. The appropriate FCC staff responsible for developing renovated/replacement software were made aware of the design and programming issues related to Year 2000. FCC staff were aware that complete Y2K compliance testing could not be carried out until the new network and associated certified systems and application software (e. g. PowerBuilder) were available. Staff did ensure that both the design and delivered programming provided four-digit year storage and manipulation.

4. The report states that the FCC has failed to complete renovation, validation and implementation of all mission critical systems and that FCC reports misstated the completion of the validation phase.

Management Response: We have acknowledged and have reported to the OMB that several systems are late principally due to late funding. The FCC reported that all systems recorded as having completed the validation phase had in fact completed only internal validation. Each report also clearly stated FCC plans and progress towards the establishment of the required independent validation process. The FCC was not unique in reporting validation in this way and OMB has stated that the reporting was understood and acceptable. The FCC received spending authority for Y2K purposes late in FY 98 and in December 1999. Much of the scheduling of replacement/renovation work on FCC mission critical systems has been controlled by the availability of funding.

5. The report provides several "examples" of the impact of unavailable mission critical systems.

Management Response: The impact of any mission critical system being unavailable should neither be understated nor overstated. The examples provided appear to be overstated. The summary states that licensing records for police, emergency medical, fire and coast and ground may be inaccessible and that key financial systems, such as Collections, may be unavailable. The FCC, in preparing local BCCPs, is now considering specific actions that would best mitigate the loss of access to vital data for these and other systems. A third example of overstatement is in the reference to the COPS system which "protects aircraft and other safety of life frequencies from potential interference." The licensing process prevents a new station from going on the air that might interfere with aircraft etc. If the license process were to be unavailable on January 1, 2000, that would not result in sudden new interference.

# ENCLOSURE

07/26/99

| Bur/Off | System | Contract # | Begin Date | End Date |
|---|---|---|---|---|
| Cable | COALS | 2 | 09/20/99 | 10/01/99 |
| CCB | Armis | 1 | 07/26/99 | 08/20/99 |
| | Informal Complaints | 1 | 07/26/99 | 08/20/99 |
| | Tariffs | 2 | 07/26/99 | 08/13/99 |
| CIB | Integrated Voice Response | 1 | 08/23/99 | 09/03/99 |
| IB | IBFS | 1 | 08/23/99 | 09/03/99 |
| | Coser | 2 | 09/13/99 | 09/24/99 |
| MMB | CDBS | 2 | 09/20/99 | 10/01/99 |
| | MDS | 2 | 08/16/99 | 08/27/99 |
| | Childrens TV | 2 | 08/16/99 | 08/27/99 |
| OET | Equipment Auth | 1 | 08/23/99 | 09/03/99 |
| | Experimental | 1 | 09/07/99 | 09/17/99 |
| OMD | Collections | 1 | 09/07/99 | 09/17/99 |
| | Fines & Forfs | 1 | 09/07/99 | 09/17/99 |
| | Nortridge | 1 | 09/20/99 | 10/01/99 |
| OPA | ECFS | 1 | 09/20/99 | 10/01/99 |
| WTB | Auctions | 1 | 09/20/99 | 10/01/99 |
| | ULS | 2 | 09/13/99 | 09/24/99 |
| | Land Mobile | 2 | 09/07/99 | 09/17/99 |
| | Marine | 2 | 08/30/99 | 09/10/99 |
| | Commercial Operators | 2 | 09/07/99 | 09/17/99 |
| | Coast & Ground | 2 | 08/30/99 | 09/10/99 |